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**DETAILED ACTION**

**Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

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made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Nakanishi (U.S. 5,412,021) or Nakamura et al. (U.S. 5,854,320).

Nakanishi discloses a water-based erasable ink comprising 50-90% water, 0.5-20% pigment, not more than 20% glycerin, 0.1-15% polyurethane, 0.2-5% fluorinated surfactant, and an antiseptic/antifungal agent in an effective amount. There is further disclosed an application instrument, i.e. marking pen, which contains the ink. Finally, it is disclosed that such an ink is completely erasable, i.e. has erasability greater than 50% (col.1, lines 12-20, col.2, lines 61-66, col.3, lines 25-26, col.6, lines 59-61, col.7, lines 20 and 55-60, col.7, line 66-col.8, line 1, col.8, lines 26-28 and 58, and col.11, lines 58-66).

Alternatively, Nakamura et al. disclose a water-based erasable ink comprising 50-90% water, 0.1-30% pigment, not more than 20% glycerin, 0.1-15% polyurethane, 0.2-5% fluorinated surfactant, and an antiseptic/antifungal agent in an effective amount. There is further disclosed an application instrument, i.e. marking pen, which contains the ink. Finally, it is disclosed that such an ink is completely erasable, i.e. has erasability greater than 50% (col.1, lines 7-10, col.2, lines 38-43, col.3, lines 1-3, col.4, line 38, col.5, lines 10-15, 21-23, 45-47, and 56-59, col.7, lines 22-34 and 38-40, and col.9, lines 20-29).

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If there is any difference between the present claims and either Nakanishi or Nakamura et al., it is the claimed requirement that the polyurethane is present in an amount of 13-45%.

While the examples disclose amounts of polyurethane which do not satisfy the above requirement, note, firstly, that these are but embodiments, and secondly, a fair reading of either Nakanishi or Nakamura et al. as a whole teach that the polyurethane is present in amounts of 0.1-15% which clearly overlaps the claimed range of polyurethane.

In light of the above, it is urged that it would therefore have been obvious to one of ordinary skill in the art to have utilized an amount of resin falling within the range disclosed by either Nakanishi or Nakamura et al., i.e. 0.1-15%, and thereby arrive at the claimed invention.

4. Claims 1-8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. (U.S. 5,716,217).

Imagawa et al. disclose a water-based erasable ink comprising not less than 30% water, not more than 20% pigment, not more than 20% glycerin, 0.5-30% polyurethane, and 0.2-5% fluorinated surfactant. There is further disclosed an application instrument, i.e. marking pen, which contains the ink. Finally, it is disclosed that such an ink is completely erasable, i.e. has erasability greater than 50% (col.2, lines 43-48, col.3, lines 28 and 47-49, col.4, lines 10 and 45-46, col.5, lines 58-60, col.6, lines 3-5 and 55-60, and col.9, lines 18-27).

While Imagawa et al. fails to exemplify the presently claimed ink composition nor can the claimed ink composition be "clearly envisaged" from Imagawa et al. as required to meet the

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standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink composition and the corresponding ink composition disclosed by Imagawa et al., it is urged that it is obvious that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use an ink composition which is both disclosed by Imagawa et al. and encompassed within the scope of the present claims, and thereby arrive at the claimed invention.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. (U.S. 5,716,217) in view of either In re Woodruff, 919 F.2d 1575, USPQ2d 1934 (Fed. Cir. 1990) or Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985).

Imagawa et al. disclose a water-based erasable ink comprising not less than 30% water, not more than 20% pigment, not more than 20% glycerin, 0.5-30% polyurethane, and 0.2-5% fluorinated surfactant. There is further disclosed an application instrument, i.e. marking pen, which contains the ink. Finally, it is disclosed that such an ink is completely erasable, i.e. has erasability greater than 50% (col.2, lines 43-48, col.3, lines 28 and 47-49, col.4, lines 10 and 45-46, col.5, lines 58-60, col.6, lines 3-5 and 55-60, and col.9, lines 18-27).

The difference between Imagawa et al. and the present claims is the requirement in the claims of the amount of polyurethane.

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Imagawa et al. disclose the use of 0.5-30% polyurethane, while the present claims require 35% polyurethane.

It is apparent, however, that the instantly claimed amount of polyurethane and that taught by Imagawa et al. are so close to each other that the fact pattern is similar to the one in In re Woodruff or Titanium Metals Corp. of America v. Banner where despite a "slight" difference in the ranges the court held that such a difference did not "render the claims patentable" or, alternatively, that "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough so that one skilled in the art would have expected them to have the same properties".

In light of the case law cited above and given that there is only a "slight" difference between the amount of polyurethane disclosed by Imagawa et al. and the amount disclosed in the present claims and further given the fact that no criticality is disclosed in the present invention with respect to the amount of polyurethane, it therefore would have been obvious to one of ordinary skill in the art that the amount of polyurethane disclosed in the present claims is but an obvious variant of the amounts disclosed in Imagawa et al., and thereby one of ordinary skill in the art would have arrived at the claimed invention.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. in view of either In re Woodruff or Titanium Metals Corp. of America v. Banner as applied to

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claims 9-11 above, and further in view of either Hanke et al. (U.S. 5,466,281) or Santini et al. (U.S. 5,389,717).

The difference between Imagawa et al. and the present claimed invention is the requirement in the claims of an anti-microbial preservative.

Hanke et al., which is drawn to aqueous ink composition, disclose the use of 0.1-2% biocide, i.e. anti-microbial preservative, in order to prevent degradation of the ink by microorganisms (col.6, lines 12-21).

Alternatively, Santini et al., which is drawn to erasable ink composition, disclose the use of up to 0.15% preservative (col.5, lines 54-64) in order to prevent the growth of fungi, mildew, etc. on the ink.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use a preservative in the ink of Imagawa et al. in order to prevent degradation of the ink by microorganisms, and thereby arrive at the claimed invention.

7. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. (U.S. 5,716,217).

Imagawa et al. disclose an application instrument, i.e. marking pen, comprising reservoir containing ink and pen tip connected thereto wherein the ink is a water-based erasable ink comprising not less than 30% water, not more than 20% pigment, not more than 20% glycerin, 0.5-30% polyurethane, and 0.2-5% fluorinated surfactant. Finally, it is disclosed that such an ink

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is completely erasable, i.e. has erasability greater than 50% (col.2, lines 43-48, col.3, lines 28 and 47-49, col.4, lines 10 and 45-46, col.5, lines 58-60, col.6, lines 3-5 and 55-60, and col.9, lines 18-27).

While Imagawa et al. fails to exemplify the presently claimed ink composition nor can the claimed ink composition be "clearly envisaged" from Imagawa et al. as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink composition and the corresponding ink composition disclosed by Imagawa et al., it is urged that it is obvious that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use an ink composition which is both disclosed by Imagawa et al. and encompassed within the scope of the present claims, and thereby arrive at the claimed invention.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. as applied to claims 13-16 above, and further in view of either In re Woodruff, 919 F.2d 1575, USPQ2d 1934 (Fed. Cir. 1990) or Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985).

The difference between Imagawa et al. and the present claimed invention is that Imagawa et al. disclose the use of 0.5-30% polyurethane, while the present claims require 35% polyurethane.

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It is apparent, however, that the instantly claimed amount of polyurethane and that taught by Imagawa et al. are so close to each other that the fact pattern is similar to the one in In re Woodruff or Titanium Metals Corp. of America v. Banner where despite a "slight" difference in the ranges the court held that such a difference did not "render the claims patentable" or, alternatively, that "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough so that one skilled in the art would have expected them to have the same properties".

In light of the case law cited above and given that there is only a "slight" difference between the amount of polyurethane disclosed by Imagawa et al. and the amount disclosed in the present claims and further given the fact that no criticality is disclosed in the present invention with respect to the amount of polyurethane, it therefore would have been obvious to one of ordinary skill in the art that the amount of polyurethane disclosed in the present claims is but an obvious variant of the amounts disclosed in Imagawa et al., and thereby one of ordinary skill in the art would have arrived at the claimed invention.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imagawa et al. as applied to claims 13-16 above, and further in view of either Hanke et al. (U.S. 5,466,281) or Santini et al. (U.S. 5,389,717).

The difference between Imagawa et al. and the present claimed invention is the requirement in the claims of an anti-microbial preservative.



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Hanke et al., which is drawn to aqueous ink composition, disclose the use of 0.1-2% preservative in order to prevent degradation of the ink by microorganisms (col.6, lines 12-21).

Alternatively, Santini et al., which is drawn to erasable ink composition, disclose the use of up to 0.15% preservative (col.5, lines 54-64) in order to prevent the growth of fungi, mildew, etc. on the ink.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use a preservative in the ink of Imagawa et al. in order to prevent degradation of the ink by microorganisms, and thereby arrive at the claimed invention.

10. Claims 1, 4-5, 8-9, 12-13, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (U.S. 5,712,328).

Inoue et al. disclose a water-based marking composition comprising 50-90% water, 1-30% pigment, 1-40% glycerin, 0.05-60% polyurethane, and an antiseptic/antifungal agent. There is further disclosed an application instrument, i.e. ball-point pen, containing ink tank which contains the ink, and tip (col.2, line 64, col.3, lines 15-17, 25-26, 32-37, 53, and 58-60, and col.4, lines 24 and 28-38).

The difference between Inoue et al. and the present claims is the requirement in the claims of (a) erasable ink and (b) specific amount of preservative.

With respect to difference (a), there is that there is no explicit disclosure in Inoue et al. that the ink is erasable. However, given that the ink contains identical ingredients as those

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presently claimed as well as amounts of these ingredients which overlap those presently claimed, it would have been natural for one of ordinary skill in the art to infer that the ink of Inoue et al. is intrinsically erasable, and thus, one of ordinary skill in the art would have arrived at the presently claimed invention.

With respect to difference (b), Inoue et al. disclose the use of an antiseptic, i.e. preservative, in an effective amount but do not explicitly disclose any amounts.

Hanke et al., which is drawn to aqueous ink composition, disclose the use of 0.1-2% preservative in order to prevent degradation of the ink by microorganisms (col.6, lines 12-21).

Alternatively, Santini et al., which is drawn to erasable ink composition, disclose the use of up to 0.15% preservative (col.5, lines 54-64) in order to prevent the growth of fungi, mildew, etc. on the ink.

In light of the motivation for using specific amount of preservative disclosed by either Hanke et al. or Santini et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of preservative in the ink of Inoue et al. in order to prevent degradation of the ink by microorganisms, and thereby arrive at the claimed invention.

11. Claims 2-3, 6-7, 10-11, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied to claims 1, 4-5, 8-9, 12-13, and 16-18 above, and further in view of either Goto et al. (U.S. 6,084,914) or Hanke et al. (U.S. 5,466,281)

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The difference between Inoue et al. and the present claimed invention is the requirement in the claims of fluorinated surfactant.

Goto et al., which is drawn to water-based ink, discloses the use of 0.01-7% fluorinated surfactant in order to control the viscosity, drying, and stability of the ink (col.8, line 41-col.9, line 18).

Alternatively, Hanke et al., which is drawn to water-based ink compositions, disclose the use of 0.1-1% fluorinated surfactant as a wetting agent to ensure that the ink is capable of wetting the metal used in the tip of the pen in order to assure acceptable delivery rate of ink to the writing surface (col.6, lines 33-51).

In light of the motivation for using fluorinated surfactant, it therefore would have been obvious to one of ordinary skill in the art to use such a surfactant in the ink of Inoue et al. in order to produce an ink with suitable viscosity, drying, and stability, or alternatively, with an acceptable delivery rate to the writing surface, and thereby arrive at the claimed invention.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Callie Shosho

9/19/00